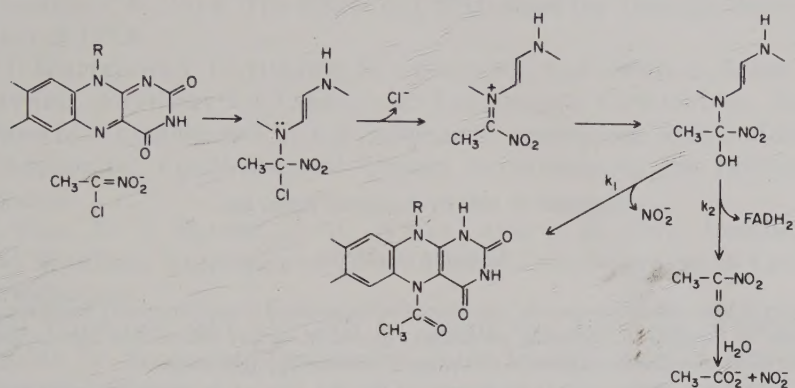


BIOORGANIC CHEMISTRY

An International Journal



VOLUME 13 · 1985

EDITOR: Gordon A. Hamilton

EDITORIAL BOARD:

Robert H. Abeles
 Duilio Arigoni
 Jack E. Baldwin
 Alan R. Battersby
 Myron L. Bender
 Stephen J. Benkovic
 Ronald Breslow
 Thomas C. Bruice
 David E. Cane
 Peter B. Dervan
 Fritz Eckstein
 Perry A. Frey
 Toshio Goto

John T. Groves
 Jaak Järv
 William P. Jencks
 E. Thomas Kaiser
 Yuichi Kanaoka
 Nathan O. Kaplan
 George L. Kenyon
 Ronald H. Kluger
 Gordon Lowe
 Teruo Matsuura
 Brian W. Metcalf
 John F. Morrison

Koji Nakanishi
 C. Dale Poulter
 Janos Rétey
 Irwin A. Rose
 A. Ian Scott
 Seiji Shinkai
 Iwao Tabushi
 Joseph J. Villafranca
 Christopher T. Walsh
 George M. Whitesides
 Richard V. Wolfenden
 Burt Zerner

ACADEMIC PRESS, INC.

(Harcourt Brace Jovanovich, Publishers)

San Diego Orlando New York Austin London
 Montreal Sydney Tokyo Toronto



Copyright © 1985 by Academic Press, Inc.

All rights reserved

No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopy, recording, or any information storage and retrieval system, without permission in writing from the copyright owner.

The appearance of the code at the bottom of the first page of an article in this journal indicates the copyright owner's consent that copies of the article may be made for personal or internal use, or for the personal or internal use of specific clients. This consent is given on the condition, however, that the copier pay the stated per copy fee through the Copyright Clearance Center, Inc. (27 Congress Street, Salem, Massachusetts, 01970) for copying beyond that permitted by Sections 107 or 108 of the U.S. Copyright Law. This consent does not extend to other kinds of copying, such as copying for general distribution, for advertising or promotional purposes, for creating new collective works, or for resale. Copy fees for pre-1985 articles are as shown on the article title pages; if no fee code appears on the title page, the copy fee is the same as for current articles.

0045-2068/85 \$3.00

MADE IN THE UNITED STATES OF AMERICA

CONTENTS OF VOLUME 13

NUMBER 1, MARCH 1985

SANDRA GUNSHORE, EDWARD J. BRUSH, AND GORDON A. HAMILTON. Equilibrium Constants for the Formation of Glyoxylate Thiohemiacetals and Kinetic Constants for Their Oxidation by O ₂ Catalyzed by L-Hydroxy Acid Oxidase	1
SUSAN M. BEATTY AND GORDON A. HAMILTON. Inhibition of Pyruvate Dehydrogenase and Pyruvate Dehydrogenase Phosphate Phosphatase by Glyoxylate	14
VIRGINIA B. PETT, JONATHAN M. SOROF, MARY B. FENDERSON, AND LAWRENCE A. ZEFF. The Effect of Cr(III) upon the Thermal Denaturation of DNA	24
GARY I. DMITRIENKO, CATHERINE R. COPELAND, LEE ARNOLD, MARC E. SAVARD, ANTHONY J. CLARKE, AND THAMMAIAH VISWANATHA. Inhibition of β -Lactamase-I by 6- β -Sulfonamidopenicillanic Acid Sulfones: Evidence for Conformational Change Accompanying the Inhibition Process	34
C. S. TSAI, D. J. SENIOR, J. H. WHITE, AND J. L. PITT. Functional and Structural Responses of Liver Alcohol Dehydrogenase to Lysine Modifications	47
HISASHI FUJIHARA AND RICHARD L. SCHOWEN. Additivity of Isotope Effects for Successive Deuteration in the Deacetylation of Acetyl- α -Chymotrypsin	57
H. E. PAAREN, W. S. MELLON, H. K. SCHNOES, AND H. F. DELUCA. Ring A-Stereoisomers of 1-Hydroxyvitamin D ₃ and Their Relative Binding Affinities for the Intestinal 1 α ,25-Dihydroxyvitamin D ₃ Receptor Protein	62
ANNOUNCEMENT	76

NUMBER 2, JUNE 1985

THOMAS W. BRUCE AND GEORGE L. KENYON. Alkyl Alkanethiolsulfonate Sulfhydryl Reagents: β -Sulfhydryl-Modified Derivatives of L-Cysteine As Substrates for Trypsin and α -Chymotrypsin	77
YASUJI IHARA, YOSHIHARU KIMURA, MAMORU NANGO, AND NOBUHIKO KUROKI. Catalytic Action of Comicles Containing Imidazolyl and Hydroxyl Groups in the Hydrolysis of Enantiomeric Esters	88
PHILIP G. KASPRZYK, ERIC WHALEN-PEDERSON, PAUL M. ANDERSON, AND JOSEPH J. VILLAFRANCA. Spatial Relationships among the Active and Allosteric Sites of Carbamoyl-Phosphate Synthetase	98
RAJ K. SEHGAL, DONNA L. GREENWOOD, AND SISIR K. SENGUPTA. Interaction of 2-Deamino- and 2-Deamino-2-Nitroactinomycin D with Calf-Thymus DNA and Formation of Ion-Radicals	110

JOSE R. MATOS, MARY B. SMITH, AND CHI-HUEY WONG. Enantioselectivity of Alcohol Dehydrogenase-Catalyzed Oxidation of 1,2-Diols and Aminoalcohols	121
MITSURU IMUTA, MASAJI KASAI, AND HERMAN ZIFFER. Absolute Stereochemistry of (+)- <i>trans</i> -1,2-Dihydroxyacenaphthene, a Mammalian Metabolite of Acenaphthylene	131
JOHN A. ZOLTEWICZ, GEORGE URAY, THOMAS D. BAUGH, AND HANNA SCHULTZ. Mechanism of Nucleophilic Substitution of Thiamine and Its Analogs: Methanol and Water Solvents	135
DAVID D. PENDERGAST AND KENNETH A. CONNORS. Complexes of Disubstituted Benzene Positional Isomers with α -Cyclodextrin.	150
RAFAL R. SICINSKI, YOKO TANAKA, HEINRICH K. SCHNOES, AND HECTOR F. DELUCA. Synthesis of 1 α ,25-Dihydroxyvitamin D ₂ , Its 24 Epimer and Related Isomers, and Their Binding Affinity for the 1,25-Dihydroxyvitamin D ₃ Receptor	158

NUMBER 3, SEPTEMBER 1985

ERNEST GIRALT, MIQUEL PONS, AND DAVID ANDREU. Use of Histidine pK _a Changes to Study Peptide-DNA Interactions	171
SAMUEL O. ONYIRIUKA. Selectivity in Aromatic Substitution: Effects of Functionalized Detergents on the Chlorination of Phenol.	179
ROSWITHA KRÜGEL, KARL-HERBERT GRUMBACH, HARTMUT LICHTENTHALER, AND JÁNOS RÉTEY. Biosynthesis of Vitamin E and of the Plastoquinones in Chloroplasts: Steric Course of the Decarboxylation	187
RICHARD DAVID GANDOUR, WILLIAM JAY COLUCCI, AND FRANK R. FRONCZEK. Crystal Structures of Carnitine and Acetylcarnitine Zwitterions: A Structural Hypothesis for Mode of Action.	197
JOHN A. ZOLTEWICZ AND THOMAS D. BAUGH. A Multistep Mechanism of Nucleophilic Substitution of Vitamin B ₁ in Methanol	209
MICHAEL C. PIRRUNG. Ethylene Biosynthesis. 3. Evidence Concerning the Fate of C1-N1 of 1-Aminocyclopropane Carboxylic Acid	219
RONALD KLUGER, VICTORIA STERGIOPOULOS, GERALD GISH, AND KHASHAYAR KARIMIAN. Chiral Intermediates in Thiamin Catalysis: Resolution and Pyrophosphorylation of Hydroxyethylthiamin	227
JUNGHUN SUH AND IRVING M. KLOTZ. Stereoselectivity in Deacylation of Nitrophenyl Acylates by Poly(ethylenimine) Derivatives	235
DAVID E. CANE, HYUN-JOON HA, CHRISTOPHER PARGELLIS, FELIX WALDMEIER, STEPHEN SWANSON, AND PUSHPALATHA P. N. MURTHY. Trichodiene Biosynthesis and the Stereochemistry of the Enzymatic Cyclization of Farnesyl Pyrophosphate	246
GORDON A. HAMILTON. Ninth Enzyme Mechanisms Conference	266

FRANCIS KAPPLER, TON T. HAI, AND ALEXANDER HAMPTON. Use of a Vinyl Phosphonate Analog of ATP as a Rotationally Constrained Probe of the C5'—O5' Torsion Angle in ATP Complexed to Methionine Adenosyl Transferase	289
K. BRUCE JACOBSON, JUAN FERRE, AND JOHN E. CATON, JR. Nickel Complexes of Sepiapterin and 6-Acetyldihydrohomopterin, a Pyrimidodiazepine from <i>Drosophila</i>	296
MAMTA GAUTAM-BASAK, DAN G. JACOBSON, AND EUGENE G. SANDER. Reversible Addition of Bisulfite Buffer to the Cytidine Ring System...	312
NORBERT PIEL, FRITZ BENSELER, ERIKA GRAESER, AND LARRY W. McLAUGHLIN. Synthesis of the Oligodeoxyribonucleotide, d(CpTpGpGpApTpCpCpApG), and Its Substrate Activity with the Restriction Endonuclease, <i>Bam</i> HI	323
WILLIAM U. PRIMROSE, NEIL E. MACKENZIE, J. PAUL G. MALTHOUSE, AND A. IAN SCOTT. ¹³ C Nuclear Magnetic Resonance Observations on the Interaction between <i>P</i> -Amidinophenylpyruvic Acid and Trypsin...	335
GREG W. GORDER, IAN HOLDEN, LUIS O. RUZO, AND JOHN E. CASIDA. Phosphinyliminodithiolane Insecticides: Oxidative Bioactivation of Phosfolan and Mephosfolan.....	344
GREG W. GORDER, IAN HOLDEN, LUIS O. RUZO, AND JOHN E. CASIDA. Phosphinyliminodithiolane Insecticides: Novel Addition Reactions of Phosfolan and Mephosfolan Sulfoxides and Sulfones	353
REVIEWS	
GEOFFREY K. COOPER AND CARMEN I. NITSCHKE. α -Terthienyl, Phototoxic Allelochemical. Review of Research on Its Mechanism of Action.....	362
THEODORE A. ALSTON, DAVID J. T. PORTER, AND HAROLD J. BRIGHT. The Bioorganic Chemistry of the Nitroalkyl Group	375
AUTHOR INDEX FOR VOLUME 13.....	404
SUBJECT INDEX FOR VOLUME 13.....	406

